

PTC® Live Global

So Easy a "Greybeard" Can Do It: Mobile Paperless Engineering

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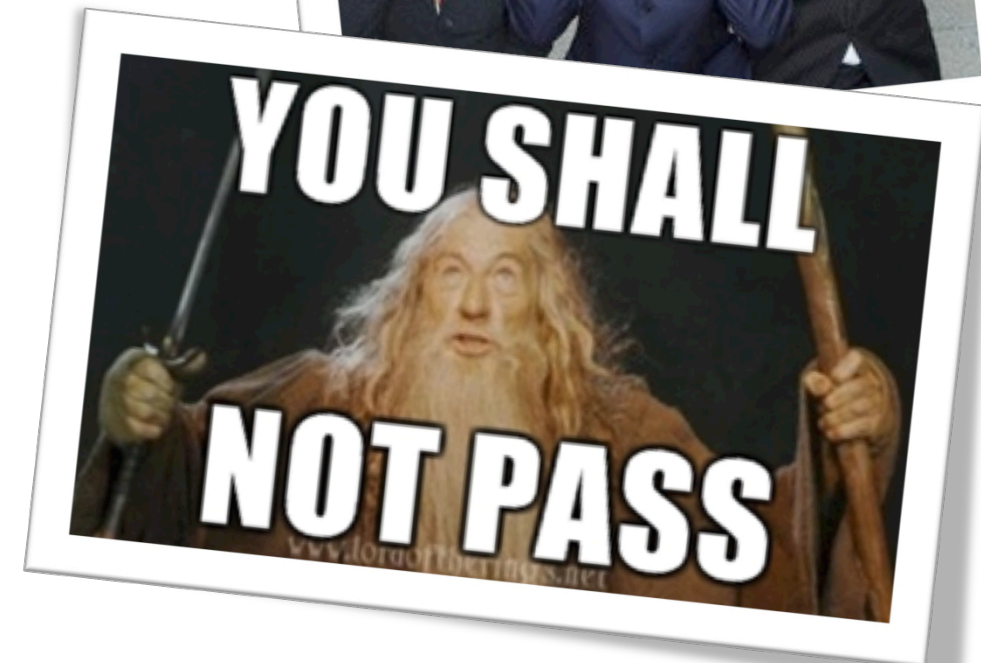
CUST217

The Engineering Services Contract (ESC) at Kennedy Space Center (KSC) provides services to NASA in respect to flight and ground systems design and development. To aid this effort, the ESC Principal Engineering Technology Development Group investigates and provides the necessary tools, aid, and best practice methodologies required for efficient, optimized design and process development. The team is responsible for configuring and implementing software, along with training, documentation, and administering standards. The team—comprising of 5 members—supports over 200 engineers and design specialists with the use of Windchill, Creo Parametric, NX, AutoCAD, and a variety of other design and analysis tools.





**A PERSON (OF ANY AGE) WHO
RESISTS CHANGE**



*Note: beard (of any length or color) not required
to be considered a “grey beard”*

What Happens Today



Demo

- Demonstrate a proof of concept that eliminates the need for paper in the various engineering phases
 - Printed documents
 - Engineering drawings
- Improve the ability to access, capture, and share information within a centralized, accessible electronic system by using secure portable electronic devices
- Increase the productivity and efficiency on engineering work tasks, while also reducing environmental impact and process related costs
 - Printing
 - Work completion time

- Resources

- Utilize readily available resources
 - Webmail
 - Messaging applications
- Incorporate use of PLM system
 - Windchill 10.2 M020

- Security

- Limit use to secure networks
 - Internal NASA wireless network
 - VPN
- Adhere to all IT Security policies

- Cost

- Minimal ramp-up cost
 - Hardware acquisition
 - Applications and/or software purchases
- Low maintenance cost

- **Safety**

- Use may occur in high-risk areas
 - Near the SLS vehicle
 - High locations, with potential for FOD
- Ability to tether or secure devices

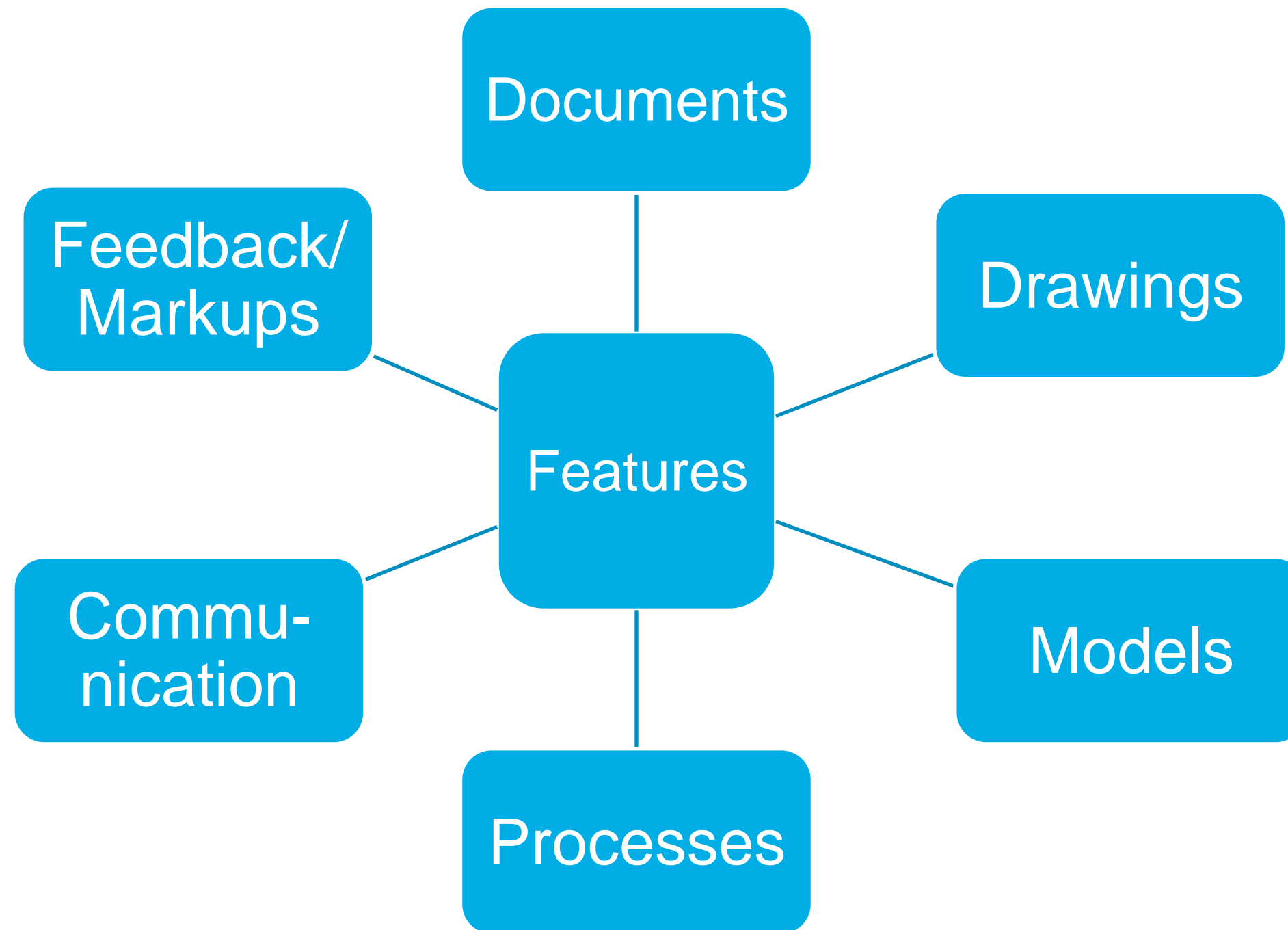
- **Environment**

- Exposure to potentially harsh work locations
 - Heat (minimal to no air conditioning in Florida)
 - Humidity
- Consideration of both indoor and outdoor locations



- **Ease of Use**
 - Would training be needed, or is it intuitive?
- **User Interface**
 - Can it be used out of the box, or are additional applications needed?
 - Can a user easily complete functions?
- **Accessibility and Interaction with Windchill**
 - Can the server/system be accessed and used?
- **Communication**
 - Can users utilize various communication tools?
- **Ability to Perform Work Functions**
 - Can everyday engineering work functions be performed?
 - Can every day managerial work functions be performed?



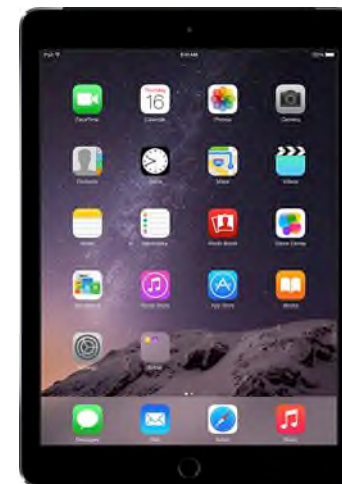


- **Accessing information while in the field**
 - Reviewing drawings
 - Opening documentation
 - Viewing models
 - Updating metadata
- **Submitting and completing change objects**
 - Problem Reports, Change Requests
 - Receiving and completing workflow/process tasks
- **Communicating with others on center**
 - Ease of access to e-mail, video, and other communication tools



Tablet Specifications
















	Galaxy Tab Pro	iPad Air 2	Surface Pro 3
Manufacturer	Samsung	Apple	Microsoft
Operating System	Android	iOS 8	Windows 8
Processor	1.9GHz	A8X, 1.5GHz	Intel Core i3, 1.5GHz
System Memory (RAM)	3 GB	2 GB	4 GB
Storage Capacity	32 GB	64 GB	64 GB
USB Ports	1 USB 3.0	No	1 USB 3.0
Price	\$684.99	\$676.98	\$769.99



First Test Case

- All tablets tested without any additional apps, programs, etc. installed
- Tests run on all browsers delivered with tablet
- Multiple “in-network” locations attempted
- Various methods/approaches used in attempt to accomplish test

First Test Case – Results Summary

	Galaxy Tab Pro	iPad Air 2	Surface Pro 3
Ease of Use			
User Interface			
Accessibility and Interaction with Windchill			
Communications			
Ability to perform Work Functions			

Fixes for Second Testing Phase

Galaxy Tab Pro

- Install PDF viewer
 - Adobe Acrobat Reader
- Install additional browsers
 - Chrome
- Install Lync app
- Install Outlook app












iPad Air 2

- Install Creo View app
- Install Windchill app
 - Verify system is configured for mobile application
 - Setup app for system
- Install PDF viewer
 - Adobe Acrobat Reader
- Install additional browsers
 - Chrome
- Install Lync app
- Install Outlook app
















Surface Pro 3

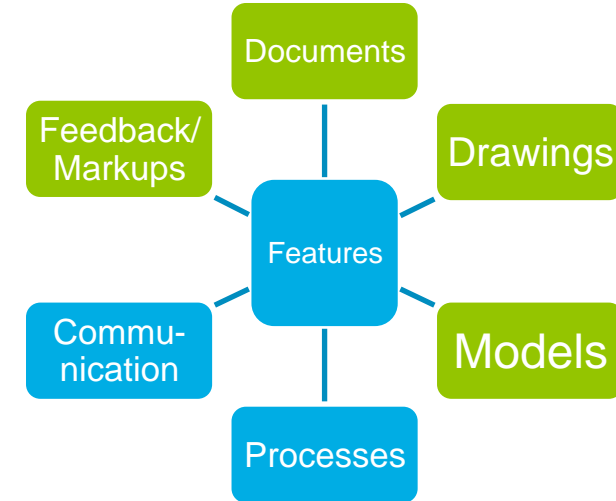
- Install Creo View program
 - Completed on tablet desktop
- Install PDF viewer
 - Adobe Reader Touch
- Install additional browsers
 - Chrome
- Install Lync app

Second Test Case – Results Summary








	Galaxy Tab Pro	iPad Air 2	Surface Pro 3
Ease of Use			
User Interface			
Accessibility and Interaction with Windchill			
Communications			
Ability to perform Work Functions			

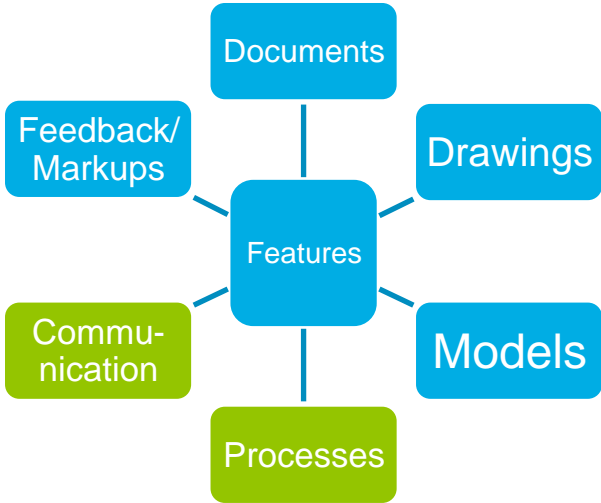
Galaxy Tab Pro

	Access in Browser	View in Browser	Open in Application
Models			
Documents (PDF)			
Documents (Native file)			
Drawings (PDF)			
Markups (Redlines)			


















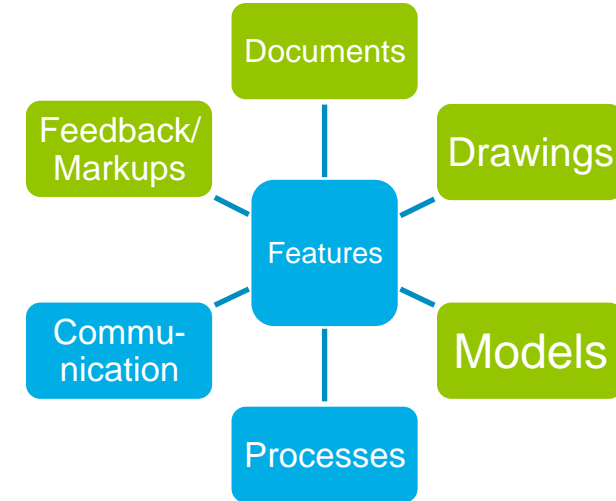
Galaxy Tab Pro

	Access in Browser	View in Browser	Open in Application
Communication (E-mail)			
Communication (Instant Message)	N/A	N/A	
Communication (Video)	N/A	N/A	
Processes (Workflows)			N/A










iPad Air 2

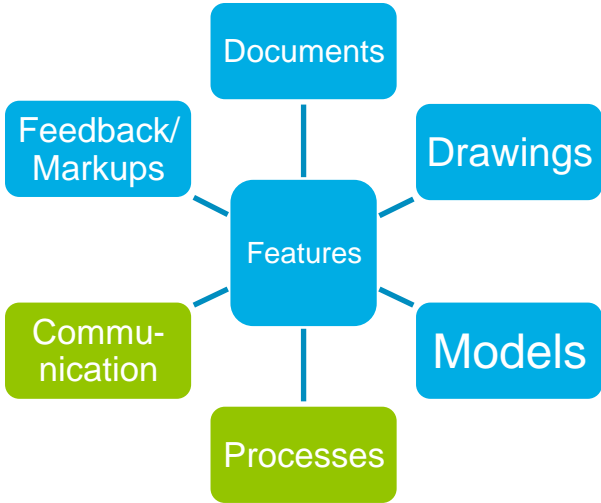
	Access in Browser	View in Browser	Open & View in Application*
Models			
Documents (PDF)			
Documents (Native file)			
Drawings (PDF)			
Markups (Redlines)			


















Note: In order to open a viewable in Creo View application, the file had to be download and opened separately. There is currently no seamless integration between the Windchill and Creo View apps.

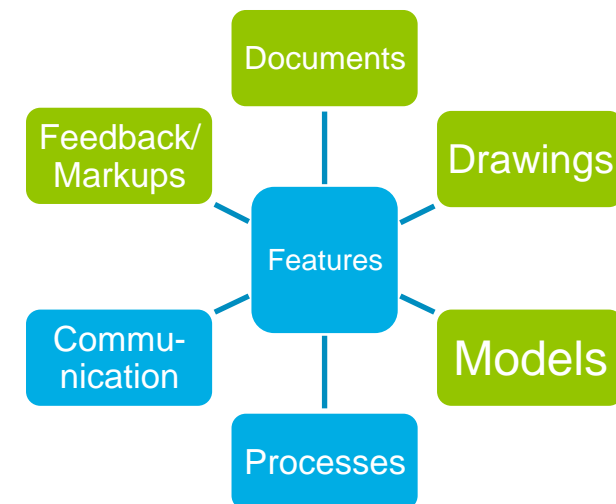
iPad Air 2

	Access in Browser	View in Browser	Open in Application
Communication (E-mail)			
Communication (Instant Message)	N/A	N/A	
Communication (Video)	N/A	N/A	
Processes (Workflows)			N/A










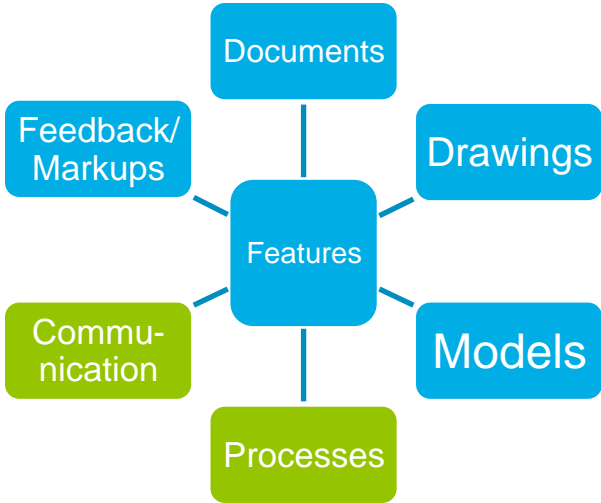
Surface Pro 3

	Access in Browser	View in Browser	Open in Application
Models			
Documents (PDF)			
Documents (Native file)			
Drawings (PDF)			
Markups (Redlines)			



Surface Pro 3

	Access in Browser	View in Browser	Open in Application
Communication (E-mail)			
Communication (Instant Message)	N/A	N/A	
Communication (Video)	N/A	N/A	
Processes (Workflows)			N/A



Demo

Final Results

Questions?

- Your feedback is valuable
- Don't miss out on the chance to provide your feedback
- Gain a chance to win an instant prize!
- Complete your session evaluation now

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